

*Melpomene* (18).

Mean Solar Time of Observation.			R. A. from Observation.			N.P.D. from Observation.			
	h	m	s	h	m	s	°	'	"
1862, May 16	11	15	24.6	14	53	1.57	90	18	6.91
19	11	0	53.2	14	50	17.46	90	8	1.20
20	10	56	3.7	14	49	23.72	90	4	58.46

*Massilia* (20).

Mean Solar Time of Observation.	R.A. from Observation.	N.P.D. from Observation.

*Euterpe* (27).

Mean Solar Time of Observation.	R.A. from Observation.			N.P.D. from Observation.					
	h	m	s	h	m	s	°	'	"
1862, May 5	10	15	13.9	13	9	18.80	94	51	28.60
20	9	9	4.3	13	2	6.71	94	21	36.86

All the observations of N.P.D. have been corrected for Refraction and Parallax.

No Occultations of Stars by the Moon were observed.

*Phenomena of Jupiter's Satellites.*

Day of Observation.	Satellite.	Phenomenon.	Mean Solar Time.			Observer.
			h	m	s	
1862, May 2	II	Occ. disapp. first cont.	8	55	2.0	D.
"	II	" bisection	8	56	47.0	D.
"	II	" last cont.	8	58	47.0	D.
"	I	Eclipse, reappearance (a)	10	12	23.3	D.
17	I	Egress, bisection	10	14	48.0	C.

(a), Very hazy; the observation not very satisfactory.

The initials D. and C. are respectively those of Mr. Dunkin and Mr. Criswick.

*Description of a New "Aplanatic" Eye-piece for Telescopes.*  
By T. W. Burr, Esq.

Those astronomers who are also microscopists are probably acquainted with an eye-piece for the microscope known as "Kellner's," or the "Orthoscopic," which offers the advantage

of a much larger field of view than the Huyghenian of corresponding power, and with equally good definition. It consists of a double convex crossed lens for field glass (that is, a lens having surfaces of different radii, the most convex side being towards the objective), and a meniscus of great convexity and small concavity for eye-glass. There is no stop in this arrangement.

Having experienced the benefit of this construction with the microscope, I was desirous of applying it to the telescope; and while trying the "Kellner" belonging to my microscope on the telescope of my Equatoreal, with which it produced only a low power, and when about to have another made for the purpose, I was informed that Mr. Thornthwaite (of the firm of Horne and Thornthwaite, Newgate Street,) had improved the "Orthoscopic" microscopic eye-piece, by substituting an *achromatic* plano-convex lens for the meniscus. The eye-glass, in his modification, consists of a double convex crown-glass lens and a plano-concave of flint-glass, forming a combination similar to one of the pairs of an achromatic microscope objective; and this construction (the field-glass remaining a crossed double convex) preserves the advantage of the large and flat field, with better definition and freedom from colour, which has induced the inventor to call it the "Aplanatic" eye-piece.

Having used this form in a microscope, I at once decided to adopt it for my telescope experiments; and therefore requested Mr. Thornthwaite to make me a suitable eye-piece, which, for the purpose of comparison, I required should be of the same power as my third Huyghenian, which, measured by Ramsden's Dynameter, gives with my object-glass a power of 123. The new eye-piece constructed for me, measured in the same way, gives 125 for its power,—a sufficiently close approximation; the slight difference being against the new combination as to size of field.

I have submitted this eye-piece to a careful and lengthened trial, and can now confidently recommend it to observers, as possessing the very great advantage of a much increased field, as compared with the Huyghenian of the same power. This is at once evident on looking at the Sun or Moon, when at least one-third more of the disk of either body is visible with this eye-piece, than with the corresponding Huyghenian. For instance, with my telescope and the ordinary eye-pieces; while a power of 60 includes the whole disk of either Sun or Moon, 80 fails to do so; and with 123 on the Moon, the field includes from the South Pole to about *Plato*, or from the North Pole to near *Bullialdus*, or in longitude, from the eastern border to *Copernicus*: while with the "Aplanatic," of even a little more power, the merest film of one edge is left unseen, and on one favourable occasion, the full Moon was entirely included. The

definition is also quite equal to the Huyghenian at all parts of the field.

The benefit of this eye-piece is also strikingly apparent in viewing clusters, such as the *Pleiades*, *Presepe*, and others; in which small stars are brought up by the increase of power and light, without losing the advantage of a large field; and in the Great Nebula of *Orion*, the effect is very beautiful, allowing the employment of a power which before was disadvantageous, as it made the object dim, and contracted the field; which is now large, and the nebula very brilliant. The division of double stars is rendered easier by this eye-piece, and the range of the telescope among small ones extended. For example, persons who could not see  $\epsilon$  *Lyræ* quadrupled with the Huyghenian of 123, had no difficulty in doing so with the Aplanatic, while the detail of the planets, and generally every object, is more readily appreciated.

I send herewith sketches of the construction of the three forms of the eye-piece, viz. the Huyghenian, Kellner's, and the Aplanatic, for comparison; and also place the instruments themselves before you.\*

*Highbury, June 10, 1862.*

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*On the Appearance of Jupiter without a Visible Satellite,*  
Sept. 1843. By the Rev. W. R. Dawes.

It has been lately suggested to me by the Astronomer Royal, that a remarkable phenomenon, which I happened to observe many years ago, ought to be recorded where it might be readily referred to; and that in fact there could not be a more suitable repository for it than the Royal Astronomical Society. I have much pleasure in acting upon this suggestion, being assured that no other apology can be needed for offering to the Society an observation which was made nearly nineteen years ago. I refer to the appearance of *Jupiter* without a visible satellite in September 1843. The observation of this rare phenomenon was immediately afterwards communicated to *The Times* newspaper in a letter, which principally referred to another Jovian phenomenon, namely, the dark transit of one of his satellites. I supposed at the time that the solitary appearance of *Jupiter* would be extensively observed; and that many communications would be made to the Society by observers possessing the means of more accurately noting the *times* of the

\* The sketches and instruments were exhibited at the Meeting of the Society.—ED.